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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,887	10/16/2006	Hiroshi Itatani	0760-0349PUS1	1737

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EXAMINER

LEONARD, MICHAEL L

ART UNIT	PAPER NUMBER
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1796

NOTIFICATION DATE	DELIVERY MODE
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04/16/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No. 10/550,887	Applicant(s) ITATANI, HIROSHI	
	Examiner MICHAEL LEONARD	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 and 28-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 October 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/27/2005; 09/27/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-10, drawn to cross-linked polyamide composition.

Group II, claim(s) 11-27, drawn to a process for producing a cross-linked polyimide.

Group III, claim(s) 28-29, drawn to a process for producing a patterned polyimide film.

Group IV, claim(s) 30-36, drawn to electronic equipment.

The inventions listed as Groups I-IV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: U.S. Patent No. 6,320,019 to Lee et al. disclose a method for preparing a polyimide by reacting tetracarboxylic dianhydride, a least one aromatic amine and one polyamino compound represented by formula III, which can be aromatic (Abstract).

During a telephone conversation with Garth Dahlan on 3/18/2009 a provisional election was made with traverse to prosecute the invention of Group II, claims 11-27. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-10, 28-29, and 30-36 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Claim Rejections - 35 USC § 102

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11-12, 14 and 24 are rejected under 35 U.S.C. 102 (b) as being anticipated by U.S. Patent No. 6,320,019 to Lee et al.

As to claims 11, 12, and 24, Lee discloses a method for preparing a polyimide by reacting tetracarboxylic dianhydride, a least one aromatic amine and one polyamino compound represented by formula III (Abstract), which can be aromatic (Column 3, line 10) in a solvent such as toluene or xylene (Column 5, line 45) in the presence of a catalyst at temperatures preferably greater than 180°C (Column 6, line 13).

As to claim 14, Lee discloses the use of diamines with siloxane structure (Column 5, lines 15-21).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 13 rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. Patent No. 6,320,019 to Lee et al. that has been explained above and is applied here as such in view of U.S. Patent Pub. No 2001/0009936 to Suzuki et al.

As to claim 13, Lee fails to disclose the specific aromatic tetramines.

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Suzuki discloses in the preparation of polyimides (0118-0161) that the following compounds having 3 or more amino groups in the molecule may be used together with the diamine compounds (0161), such as, 2,7-diamino-9,9'-(bis-4-aminophenyl)fluorene (0173).

It is prima facie obvious to combine two compositions each of which is taught by the art to be useful for the same purpose in order to form a third composition to be used for the same purpose, such as electrical insulation or other variety of applications in an electronic field (Lee, Column 1, lines 18-22, Suzuki, 0004) (See MPEP 2144.06).

Claims 15-23, 25-26 are rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. Patent No. 6,320,019 to Lee et al. that has been explained above and is applied here as such in view of U.S. Patent No. 5,502,143 to Oie et al.

As to claims 15-17, Lee discloses using catalyst in imidization process at a temperature above 180°C, but fails to disclose the claimed binary catalyst.

Oie discloses in the preparation of polyimides containing more than 3 components (Abstract) the use of binary catalysts at a temperature from 140-220°C (Column 4, line 37) and the binary catalyst comprises valerolactone-pyridine or crotonic acid-N-methyl morpholine (Column 4, lines 9-11).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the binary catalyst disclosed by Oie as the catalyst system for the polyimides as disclosed by Lee to produce polyimides by a sequential addition technique and without any special separation process of polyimides and binary catalyst.

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Lee discloses the use of catalysts, but does not disclose a binary catalyst system. Oie discloses that the binary catalyst system has a low boiling point that gives high yield of polyimide having high purity that a single catalyst. Also, Oie discloses that the carboxylic acid formed in the presence of the base from binary catalyst system exhibits excellent catalytic behavior in the imidation reaction and by removing base and water by evaporation, the carboxylic acid is converted to valerolactone which shows no activity of catalysis and which exhibits no substantial decrease in characteristic properties of the polyimides (Column 4, lines 18-25).

As to claim 18, 22-23, and 25-26, Oie discloses sequential reactions for preparing polyimides by reacting a first diamine and a first acid anhydride to produce an polyimide oligomer and then further reacting the oligomer with another acid anhydride and aromatic amine to produce the final polyimide (Column 4, lines 30-65) to produce a polyimide with a molecular weight of 10,000 to 50,000 (Column 6, lines 53-54, Example 1).

As to claims 19-21, Lee discloses upon the synthesis of polyimides a reaction system based on 100 moles of tetracarboxylic dianhydride, 10-100 moles of the diamines compound is added, 0.1 to 90 moles of the diamines with siloxane structure is added, and 0.01 to 20 moles of the polyamino compound is added (Column 6, lines 35-43).

Claim 27 is rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. Patent No. 6,320,019 to Lee et al. that has been explained above and is applied here as such in view U.S. Patent No. 6,630,064 to Itatani.

As to claim 27, Itatani discloses the addition of a photoacid generator to a polyimide composition (Abstract).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to add a photoacid generator the polyimide composition disclosed by Lee because polyimides are used as negative-type photoresists. Negative-type polyimide photoresists have drawbacks in that the sensitivity is lower than that of positive-type polyimide photoresists. In order to get over the drawbacks photoacid generators are used to give polyimides which exhibit positive photosensitivity (Column 1, lines 55-65).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL LEONARD whose telephone number is (571)270-7450. The examiner can normally be reached on Mon-Fri 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MICHAEL LEONARD/
Examiner, Art Unit 1796

/Randy Gulakowski/
Supervisory Patent Examiner, Art Unit 1796